Water Emergency and Conservation Plan

(a.k.a. Water Supply Plan)

Saint Paul Regional Water Services

April 9, 2007

Introduction

- Minnesota Statutes 103G.291
  - Public water suppliers serving more than 1,000 people must have a water emergency and conservation plan approved by the DNR. The plan must be updated and submitted to the DNR for approval every ten years.
- SPRWS submitted its original plan in 1996 and the update in 2006.

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Outline

I. Water Supply System Description and Evaluation
II. Emergency Response Procedures
III. Water Conservation Plan
IV. Water Demand Projections Required by the Metropolitan Council

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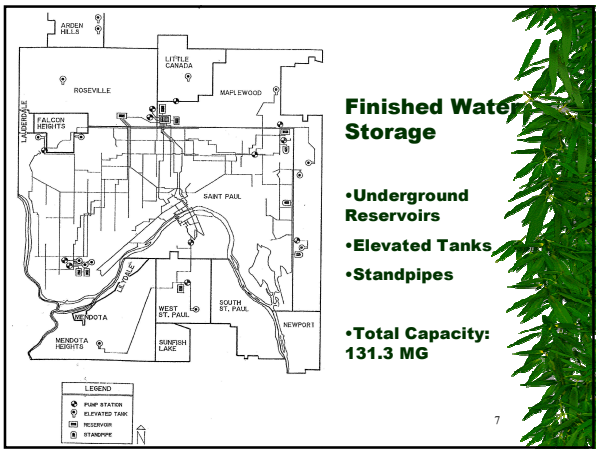
Part I

Water Supply System
Description and Evaluation


ARDEN HILLS
LITTLE CANADA
ROSEVILLE
MAPLEWOOD
FALCON HEIGHTS
LAUDERDALE
SAINT PAUL
LYDALE
WEST ST. PAUL
SOUTH ST. PAUL
MENDOTA
NEWPORT
MENDOTA HEIGHTS
SUNFISH LAKE
LEGEND
PUMP STATION
ELEVATED TANK
RESERVOIR
STANDPIPE
N
Finished Water Storage
•Underground Reservoirs
•Elevated Tanks
•Standpipes
•Total Capacity: 131.3 MG
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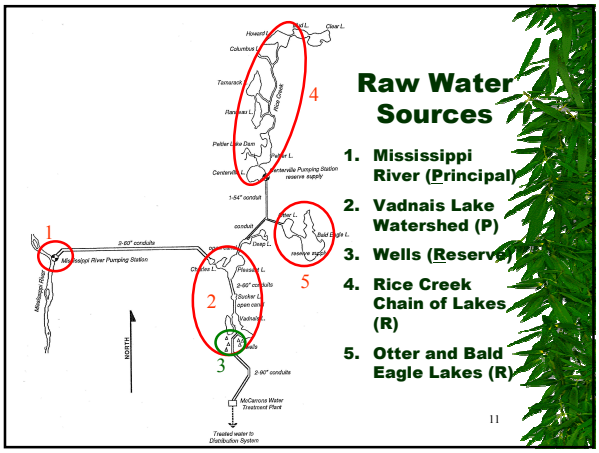

Raw Water Sources

1. Mississippi River (Principal)
2. Vadnais Lake Watershed (P)
3. Wells (Reserve)
4. Rice Creek Chain of Lakes (R)
5. Otter and Bald Eagle Lakes (R)

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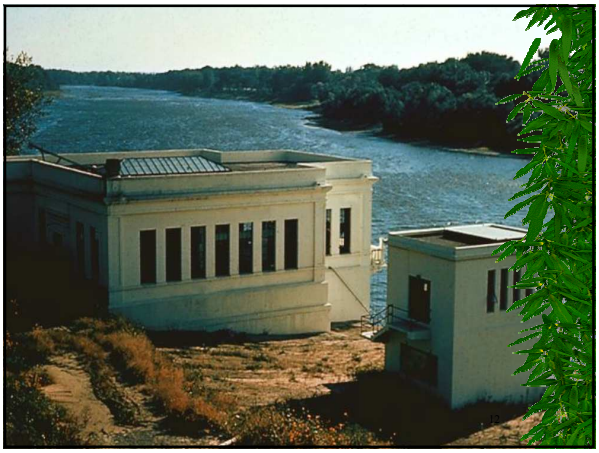


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Analysis of Water Demand (1995-2004)

- Growth in population
- Decrease in water demand
  - Average daily demand: 47.8 MGD
- Declining trend in per capita daily demand
  - SPRWS expects people use less water due to conservation.
  - Plateau starting in 2010: 100 gallons per person per day

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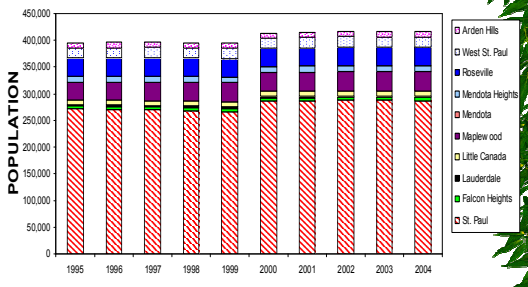
Population



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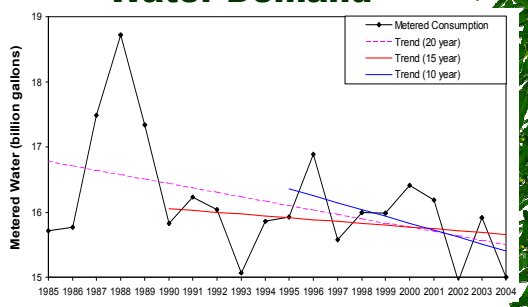
Water Demand



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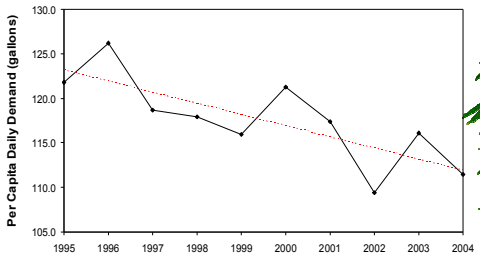
Per Capita Daily Demand



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Capital Improvement Plan

Expansion of groundwater supply to ~50 MGD	$300,000/yr
Valve and hydrant replacement program	$550,000/yr
Main replacement program	3,600,000/yr
Upgrades at the water treatment plant (GAC)	$10,000,000
Lead service replacements	$1,600,000/yr

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Surface Water Protection Plan

- Surface Water Protection Plan – Working with other governmental agencies to reduce contaminants in the Upper Mississippi River through the Total Maximum Daily Load (TMDL) process.

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Ground Water Protection Plan

- Wellhead Protection Plan – Working with the Health Department to complete the plan by summer of 2007.

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Part II

Emergency Response Procedures

Background

- Water emergencies can occur as a result of vandalism, sabotage, accidental contamination, mechanical problems, power failures, drought, flooding, and other natural disasters.
- The purpose of emergency planning is to develop emergency response procedures and to identify actions needed to improve emergency preparedness.

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Procedures for Augmenting Water Supplies

- **Raw water supply**
  - Three reserve water sources
  - Headwaters reservoirs of the Mississippi River
- **Finished water supply**
  - Interconnections to South St Paul, Inver Grove Heights, and Woodbury systems
  - St Paul and Minneapolis interconnection: discussion continuing

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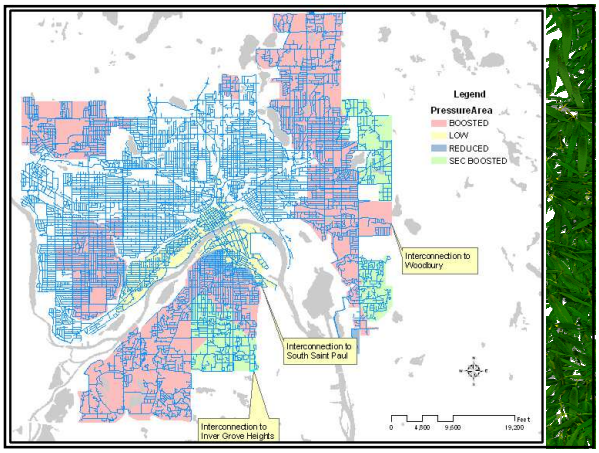

Short-Term Demand Reduction Procedures

Condition	Trigger 72-hr flow at Anoka Dam at	Action
	median monthly flow	Verify that flows have dropped below average summer conditions; in anticipation of low flows, begin to pump surplus river flow into reservoir system.
Stage 1 (voluntary)	2,000 cfs	Issue a general media appeal for citizens to reduce any unnecessary use of water.
Stage 2 (Voluntary)	1,200 cfs	Issue a more aggressive appeal.
Stage 3 & 4 (Mandatory)	1,000 cfs	Institute lawn sprinkling ban and reduce demand to 56 MGD (Stage 4).
Stage 5 & 6 (Mandatory)	750 cfs	Institute total ban on any outside use of water and reduce demand to 45 MGD (Stage 5) or even below winter base usage (Stage 6).

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Part III

Water Conservation Plan

Purposes

- Water conservation programs are intended to reduce water demand, improve the efficiency in use and reduce losses and waste of water.
- Long-term conservation measures can help reduce the need for short-term conservation measures.

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Water Conservation Programs

- Meter operations
  - Test and maintain meters on a regular basis
  - Approximately 1,600 meters every year
- Keep track of unaccounted-for water
  - Average 9.7% in 1995-2004
  - Efforts to reduce water leakage:
    - Leak detection and survey
    - Main replacement program to prevent main breaks
    - Replacing lead services

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Water Conservation Programs (Cont.)

- Conservation water rates
  - Higher seasonal rates in summer
- Education and information programs
  - Newsletters, brochures, open houses, tours of the McCarrons Water Treatment Plant

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Part IV

Water Demand Projections
Required by
the Metropolitan Council

Background

- Minnesota Statute 473.859 requires water supply plans to be completed for all local units of government in the seven-county Metropolitan Area as part of the local comprehensive planning process.

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Water Demand Projections

Year	Population Served	Projected Demand (MGY)	Average Day Demand (MGD)	Maximum Day Demand (MGD)
2010	442,340	16,145	44.2	84.0
2020	464,560	17,003	46.5	88.3
2030	488,200	17,819	48.8	92.8

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Thank You!

Questions and Comments?